

WHAT IS CLAIMED IS:

1. A method of assigning a plurality of threads to a plurality of processors, each of the threads being a unit of execution of a real-time operation, the 5 method comprising:

selecting a tightly coupled thread group from among the threads based on coupling attribute information indicative of a coupling attribute between the threads, the tightly coupled thread group including 10 a set of tightly coupled threads running in cooperation with each other; and

15 performing a scheduling operation of dispatching the tightly coupled threads to several of the processors that are equal in number to the tightly coupled threads to simultaneously execute the tightly coupled threads by the several of the processors.

2. The method according to claim 1, wherein each of said plurality of processors includes a local memory, and the method further comprises mapping the 20 local memory of one of the several of the processors, which executes one of the tightly coupled threads, in part of an effective address space of other one of the tightly coupled threads executed by other one of the several of the processors.

25 3. The method according to claim 1, wherein performing the scheduling operation includes reserving an execution term of each of the several of the

processors.

4. The method according to claim 1, wherein each of the tightly coupled threads has context information indicating contents of a register and a local memory of 5 one of the several of the processors.

5. The method according to claim 1, wherein said plurality of processors are electrically connected to a shared memory,

the method further comprises selecting a loosely 10 coupled thread group from among the threads based on the coupling attribute information, the loosely coupled thread group including a set of loosely coupled threads communicating through a buffer on the shared memory, and

15 performing the scheduling operation includes dispatching the loosely coupled threads to one or more of the processors in accordance with a relationship in input and output between the loosely coupled threads.

6. The method according to claim 1, wherein the 20 scheduling operation is performed by an operating system executed by one of said plurality of processors.

7. A method of assigning a first thread and a 25 second thread to a first processor having a local memory and a second processor having a local memory, the first thread and the second thread running in cooperation with each other, the method comprising:

performing a scheduling operation of dispatching

the first thread and the second thread to the first processor and the second processor to simultaneously execute the first thread and the second thread by the first processor and the second processor, and

5 mapping the local memory of the second processor, which executes the second thread, in an effective address space of the first thread executed by the first processor.

8. The method according to claim 7, further
10 comprising mapping the local memory of the first processor, which executes the first thread, in an effective address space of the second thread executed by the second processor.

9. A real-time processing system that executes a plurality of threads, each of the threads being a unit of execution of a real-time operation, comprising:
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a plurality of processors;
means for selecting a tightly coupled thread group from among the threads based on coupling attribute information indicative of a coupling attribute between the threads, the tightly coupled thread group including a set of tightly coupled threads running in cooperation with each other; and
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means for performing a scheduling operation of dispatching the tightly coupled threads to several of the processors that are equal in number to the tightly coupled threads to simultaneously execute the tightly
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coupled threads by the several of the processors.

10. The real-time processing system according to claim 9, wherein each of said plurality of processors includes a local memory, and the system further comprises means for mapping the local memory of one of the several of the processors, which execute one of the tightly coupled threads, in part of an effective address space of other one of the tightly coupled threads executed by other one of the several of the processors.

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11. The real-time processing system according to claim 9, wherein the means for performing the scheduling operation includes means for reserving an execution term of each of several of the processors.

15 12. The real-time processing system according to claim 9, wherein said plurality of processors are electrically connected to a shared memory,

the system further comprises means for selecting a loosely coupled thread group from among the threads based on the coupling attribute information, the loosely coupled thread group including a set of loosely coupled threads communicating through a buffer on the shared memory, and

25 the means for performing the scheduling operation includes means for dispatching the loosely coupled threads to one or more of the processors in accordance with a relationship in input and output between the

loosely coupled threads.

13. A real-time processing system that executes a plurality of threads including a first thread and a second thread which run in cooperation with each other, comprising:

5 a first processor having a local memory;

a second processor having a local memory;

a shared memory shared by the first processor and the second processor;

10 a scheduling unit configured to perform a scheduling operation of dispatching the first thread and the second thread to the first processor and the second processor to simultaneously execute the first thread and the second thread by the first processor and the second processor; and

15 an address translation unit provided in the first processor, the address translation unit configured to convert an effective address space of the first thread executed by the first processor to a physical address space of the local memory of the second processor.

20 14. The real-time processing system according to claim 13, further comprising another address translation unit provided in the second processor, the another address translation unit configured to convert an effective address space of the second thread executed by the second processor to a physical address space of the local memory of the first processor.

15. A program which is stored in a computer-readable media and causes a computer including a plurality of processors to perform a scheduling operation to assign a plurality of threads to the 5 processors, each of the threads being a unit of execution of a real-time operation, the program comprising:

causing the computer to select a tightly coupled thread group from among the threads based on coupling 10 attribute information indicative of a coupling attribute between the threads, the tightly coupled thread group including a set of tightly coupled threads running in cooperation with each other; and

15 causing the computer to dispatch the tightly coupled threads to several of the processors that are equal in number to the tightly coupled threads to simultaneously execute the tightly coupled threads by the several of the processors.

16. The program according to claim 15, wherein 20 each of said plurality of processors includes a local memory, and the program further comprises causing the computer to map the local memory of one of the several of processors that execute one of the tightly coupled threads, in part of an effective address space of other 25 one of the tightly coupled threads executed by other one of the several of the processors.